UNITED STATES SPECIAL OPERATIONS COMMAND

Proposal Submission

The United States Operations Command's (USSOCOM) mission includes developing and acquiring unique special operations forces (SOF) equipment, material, supplies and services. Desired SOF operational characteristics for systems, equipment and supplies include: lightweight and micro-sized; reduced signature/low observable; built-in survivability; modular, rugged, reliable, maintainable and simplistic; operable in extreme temperature environments; water depth and atmosphere pressure proof; transportable by aircraft, ship and submarine, and deployable by airdrop; LLPI/LPD jam resistant C3I, electronic warfare capable of disruption and deception; near real-time surveillance, intelligence and mission planning; highly lethal and destructive; low energy/power requirements; and compatible with conventional force systems.

USSOCOM is seeking small businesses with a strong research and development capability and an understanding of the SOF operational characteristics. The topics represent a portion of the problems encountered by SOF in fulfilling its mission.

Inquires of a general nature or questions concerning the administration of the SBIR program should be addressed to:

United States Special Operations Command
Attn: SOAL-KS/Ms. Karen L. Pera
7701 Tampa Point Blvd.
MacDill Air Force Base, Florida 33621
Tel: (813) 828-7549
Fax: (813) 828-7504
Email: perak@socom.mil

USSOCOM has identified 4 technical topics for the FY '01.1 solicitation. Proposals will only be accepted for these 4 topics. The USSOCOM technical offices responsible for the research and development in these specific areas initiated topics. The same office is responsible for the technical evaluation of the proposals. Proposal evaluation factors are listed below. Each proposal must address each factor in order to be considered for an award. Scientific and technical information assistance may be requested by using the DTIC SBIR Interactive Technical Information System (SITIS).

The maximum amount of SBIR funding for a USSOCOM Phase I award is $100,000 and the maximum time frame for a Phase I is 6 months. Phase I proposals less than 6 months and/or less than $100,000 and are encouraged where low risk technologies are being proposed. The maximum amount of SBIR funding for a USSOCOM Phase II award is $750,000 and the maximum time frame for a Phase II is 24 months. Phase II proposals less than 24 months and/or less than $750,000 are also encouraged. Proposals should be based on realistic cost and time estimates, not on the maximum time (months) and dollars. The cost of the project is based on the overall amount of hours spent to accomplish the work required and the overall term of the project should also be based on the same effort. In preparing their proposals and plan of objectives and milestones, firms should consider that workload and operational tempo precludes extensive access to government and military personnel beyond established periodic reviews.

Evaluation Criteria – Phase I & II

1) The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward topic or subtopic solution.

2) The qualifications of the proposed principal/key investigators supporting staff, and consultants. Qualifications include not only the ability to perform the research and development but also the ability to commercialize the results.

3) The potential for commercial (Government of private sector) application and the benefits expected to accrue from this commercialization.

Selection of proposals for funding is based upon technical merit and the evaluation criteria included in the solicitation. As funding is limited, USSOCOM will select and fund only those proposals considered to be superior in overall technical quality and most critical. USSOCOM may fund more than one proposal in a specific topic area if the technical quality of the proposals are deemed superior, or it may fund no proposals in a topic area. Fast Track Phase II proposals will be selected for phase II award provided they meet or exceed the "technically sufficient" standard discussed in Section 4.3 of this solicitation. The total USSOCOM funds for a Phase I and the interim Fast Track funding will not exceed $140,000.

The Phase II enhancement plan for the Special Operations Command is intended to encourage the acquisition programs to leverage the technology being developed under the SBIR program. The SBIR program will provide a one to four match of SBIR dollars to non-SBIR program dollars (from acquisition programs, the private sector, etc.) for Phase II work, not to exceed $100,000 in additional SBIR funding. The additional SBIR dollars will only be available for testing and/or further development that will result in a prototype as a deliverable. Offerors are strongly encouraged to develop a Phase II proposal that will include a tangible product to be used for marketing purposes.

Electronic Submission Instructions

All proposal information must be received electronically via the DoD SBIR/STTR Submission site. To submit, proceed to http://www.dodsbir.net/submission. Once your firm has been registered, they may prepare (and edit) Company Commercialization Report Data, prepare (and edit) Proposal Cover Sheets(s) (formerly referred to as Appendix A and B), complete the Cost Proposal form, and upload corresponding Technical Proposal(s). In addition to the electronic submission, one paper copy of the Proposal Cover Sheet, Company Commercialization Report, cost proposal, and technical proposal is required with original signatures and will be submitted to the address shown below by 3:00PM EST on January 10, 2001. The paper submission, exclusive of the Company Commercialization Report, may not exceed 25 pages.

United States Special Operations Command
Attn: SOAL-KB/SBIR Program, Topic 01-00_
7701 Tampa Point Blvd.
MacDill Air Force Base, Florida 33621
(Phone number for express packages is 813-828-6512)

Paper copies alone will not be considered. A complete electronic submission is required for proposal evaluation. Proposal evaluation will be accomplished via a secure web site. Please call 727-549-7030 or duffj@ctc.com for assistance to upload the proposals. Please note that there have been problems in the past with AOL uploads due to their system, therefore strongly suggest an alternate internet service provider (ISP) for files larger than 5mg.

Refer to the on-line help area of the DoD SBIR/STTR Submission site for questions, troubleshooting, etc. For further assistance, contact the help desk at SBIRHELP@teltech.com or 1-800-382-4634.

USSOCOM offers information on the Internet about its SBIR program at http://www.socom.mil and http://www.acq.osd.mil/sadbu/sbir.

Electronic Technical Proposal Upload

The term “Technical Proposal” refers to the part of the submission as described in Section 3 of the Solicitation. WordPerfect, Text, and MS Word are the preferred formats for proposal submissions. You are encouraged, but not required, to embed graphics within the document. When including images, care should be taken to ensure images are not of excessive size. A resolution of 200 dpi or below is requested for all embedded images. Please use standard fonts in order to prevent conversion difficulties. An overall file size of 5MB or less is recommended for each electronic proposal submission.

You will receive a confirmation page via the submission site once the proposal has been uploaded. The upload will be available for viewing on the DoD SBIR/STTR Submission site within 24 hours. It is within your best interest to review the upload to ensure the server received the complete file. Questions or problems should be directed to the help desk as mentioned above.

You are responsible for performing a virus check on each proposal to be uploaded electronically. The detection of a virus on any submitted electronic technical proposal may be cause for the rejection of the proposal. USSOCOM will not accept e-mail submissions. You should contact your Internet Service Providers to if you have questions concerning the provider's file size transmission allowance.

USSOCOM
FY'01.1 SBIR TOPIC INDEX

Ground/SeaVehicles; Materials/Processes

SOCOM 01-001 Composite, Stuff-Proof Windshield and Lightweight Pilothouse Assembly

Sensors; Information Systems

SOCOM 01-002 Laser Tagging/Tracking/Identification

Ground/Sea Vehicles; Materials/Processes

SOCOM 01-003 Application of Turbine engines in Naval Special Warfare (NSW) Craft

Information Systems

SOCOM 01-004 Tactical Simulator for Naval Special Operations Forces (SOF)

SOCOM 01-001 TITLE: Composite, Stuff-Proof Windshield and Lightweight Pilothouse Assembly

TECHNOLOGY AREAS: Ground/Sea Vehicles; Materials/Processes

Acquisition Program: MK V Special Operations Craft

OBJECTIVE: Develop a high strength, lightweight, modular, composite windshield structure and glass that will not fail when the MK V Special Operations Craft (SOC) passes through a wave (or "stuffs") at speeds up to 50 knots. The desired structure will be a modular, removable lightweight composite pilothouse assembly to replace current metal, glass and fabric structure that now includes the wind shield, aluminum overhead, fabric/plastic covering materials, and aluminum arch. If feasible, include embedding and/or telescoping (or swing) up/down sensors and antennae.

DESCRIPTION: The MK V SOC, fully fielded to the Fleet, currently has the cockpit area covered by a combination of an aluminum hard top and plastic/canvass covering. That arrangement is hot (in tropical conditions), noisy, and has high reflectivity characteristics for purposes of radar detection. Air quality is not controllable, i.e. open and exposed totally to atmospheric conditions. Personnel and equipment are provided only the most rudimentary of protection from the environment. The current MK V SOC windshield structure fails when the boat stuffs into a wave at high speed. The current structure is heavy and is characterized by numerous weak and leak points, e.g. seams, fasten points, and the fabric coverings do not provide a satisfactory weather-tight enclosure for the crew and passengers.

The goal of this SBIR is a product with high strength, and a modular and lightweight structure. It should provide better protection from the elements throughout cockpit area. The product will should permit effective heating and air conditioning of the entire pilothouse assembly to minimize effects of adverse outside environmental conditions on personnel and equipment, e.g. if electronics exposure to spray and sand/grit were minimized through total coverage, there would for far greater control of air quality. With more effective protection of personnel, injuries during high sea-state operations would be lessened significantly. Enhanced human factor conditions lead generally to improved combat readiness/crew comfort.

Finally, it would be highly desirable to incorporate sensors and antennae array into the above system would help masks the craft's capabilities while reducing RCS signature.

PHASE I: Design the composite, stuff-proof windshield and lightweight pilothouse assembly as described above. Of interest are innovative composite materials and high-strength/lightweight design elements, as well as novel manufacturing approaches.

PHASE II: Develop and test prototype(s) in operationally representative scenarios/configurations.

PHASE III DUAL USE APPLICATIONS: The design and supporting technologies would be applicable to interest to all craft that operate in open seas, military or commercial. In specific terms, particularly desirous for personnel protection on commercial craft that operate in climatic extremes (temperature, spray, other moisture, etc) where protection from the elements is problematic. Embedded antennae and/or sensors would have potential applicability to pleasure craft for aesthetic style purposes. A successful system evolving from this SBIR project would be implemented via retro-fit action, which is analogous to how a commercialization could occur (i.e., retrofit commercial or pleasure-craft with high-performance/lightweight crew and passenger compartment covers to replace original equipment.

SOCOM 01-002 TITLE: Laser Tagging/Tracking/Identification

TECHNOLOGY AREAS: Sensors; Information Systems

OBJECTIVE: Design and build an inexpensive portable tagging system that will permit tagging and tracking of U.S. military assets. Desire a system that will identify a resource by allowing easy placement of a transparent barcode and/or by a transparent optical emitter. This tag would allow units to automatically record, for instance, when military equipment enter and leave a facility. A small, low power detector would be used by either a person holding

and pointing it at the asset, or a detector mounted near a gate.

DESCRIPTION: Tracking and identification of assets from aerial and ground locations would be an extremely valuable tool for many military units. Wish to research and develop a system that meets the following guidelines:
* Technology that would permit the use of a retro-reflective transparent bar code on a car or truck, that would permit a detector/scanner to identify the vehicle. The bar codes:
- Should be designed to be installed easily and quickly.
- Should be transparent to the human eye and only detectable by the designed detector.
- Should be detectable during the day; prefer also during the night.
- Should be detectable from an incident viewing angle, from the detector/scanner, of not less than 135 degrees.

* Technology that would permit the use of an LED or laser that emits radiation which is invisible to ordinary personnel, but would be modulated with a code that would permit identification of a particular vehicle. This could be installed in tail or headlights, or other points on the vehicle. The LED/Laser:
- Should be designed to be installed easily and quickly.
- Should emit radiation that is invisible to the human eye and only detectable by the designed detector.

* The detector that will detect the above Bar Code/LED/Laser:
- Should be very small in size; prefer less than 10 in3 in size. Must be low power; prefer less than 1W in operation, less than 1mW when in "sleep" mode.
- Should be capable of operation hand held or left behind for remote operation.
- Prefer it have networking capability that would identify each detector with an IP address, and use DSSS to communicate between each other and a base station.
- Should be designed with Commercial Off-The-Shelf equipment as much as possible to reduce costs for later production.
- Should be capable of detecting the bar codes at a distance of at least 50 yards, and capable of detecting the LED/Laser at least ¼ mile.
- Prefer detector be capable of detecting both types (bar code and LED), but acceptable to have two different detectors.

* Base Station should be:
- AC or DC powered. Low power (prefer less than 10W).
- Components will be capable of being placed on or interfacing with a PCMCIA card for use with a designed base station box, or for placement into a laptop.
- Software will be capable of receiving information from multiple detectors, cataloging the ID number of the vehicle, and capable of being tied into a GPS mapping system and ground reference points.
- Network capable for communication with detectors, using DSSS and TCP/IP routing of signals.

PHASE I: Effort should focus on technological approach for addressing the requirement. This should result in the delivering of a complete technical description and identification of technology risk areas. Accompanying this would be an in-depth study and analysis of experimental materials to locate the reflective materials best suited for this application, as well as an in-depth cost estimate for developing a prototype system for use in development test and evaluation.

PHASE II: Build, test and report on design from Phase I effort.

PHASE III DUAL-USE APPLICATIONS: This system could have applications throughout DOD and law-enforcement, but could also have applications in shipping, and production plant control.

SOCOM 01-003 TITLE: Application of Turbine Engines in Naval Special Warfare (NSW) Craft

TECHNOLOGY AREAS: Ground/Sea Vehicles; Materials/Processes

Objective: Develop and test a marine turbine engine for NSW craft that reduce the heat/IR signature to 15dB level or lower, and the above water acoustic/noise signature to 60dB level or lower.

Description: The turbine engine has several operational advantages over standard diesel and gasoline engines currently being used by the NSW community; lighter weight, higher power-to-weight ratio, smaller volume, ability to run at high power settings for prolonged periods. The major drawback with turbine engines for SOF applications is their IR and acoustic signatures. The turbine engine technology has been demonstrated in several marine applications to include private craft and racing craft, however, the requirement to reduce the signature levels has never been addressed. Of interest for this SBIR effort would be to use new or evolving technologies to accomplish these signatures reductions while maintaining performance and cost-effectiveness.

Phase I: Develop overall system design that includes IR and acoustic signature reduction features, and risk-reduction analysis which provides assurance of meeting Government requirements.

Phase II: Develop and install prototype turbine engine(s) in an NSW-representative craft. Conduct feasibility testing to determine operational/signature capabilities of craft, demonstrate performance, and cost-benefit.

Phase III Dual-Use Potential: Technologies/designs that reduce turbine heat and acoustic signature would have benefit to military and commercial applications of turbine engines.

SOCOM 01-004 TITLE: Tactical Simulator for Naval Special Operations Forces (SOF)

TECHNOLOGY AREAS: Information Systems

Description: Case study is a proven training methodology for many applications. Tactical scenarios are being combined with evolving multimedia display technologies and high-performance simulators to introduce this approach to training throughout the military. The Naval Special Warfare Tactical Combat Casualty Care program has been using actual and hypothetical casualty scenarios to help train SEAL corpsmen and mission commanders in tactical medicine. This concept could be technologically enhanced and used for non-medical tactical training as well. There is presently no high performance simulation tool available for tactical SEAL operations. The same scenarios used for casualty discussions can be modified to present, experience, and work through tactical problems. This SBIR project would develop a SEAL tactical Simulator (STS) that would progress from a collection of suitable scenarios to development of tactical responses to determining the relative merits of each option. Advanced development will consist of adding combat video footage, interactive features (e.g., intelligent tutors), and suitable computer interfaces. An open architecture and standard interfaces will be used to ensure compatibility with evolving mission planning, analysis, rehearsal and execution programs. This effort would result the demonstration of concepts, technologies and an initial prototype to provide the look and feel of the STS.

Phase I: Conduct a feasibility concept study, to include: identification of relevant technologies; conceptualization of form, formats, and contributing architectures; and identification of prototyping risk factors.

Phase II: Prototype and demonstrate an STS. Conduct optimization and accreditation assessments.

Phase III Dual Use Applications: The STS would provide a foundation for a whole family of small unit level simulation tools for military and law enforcement applications that would support distance learning and distributed simulation systems.